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The Subscribers to the Southern Agriculturist are reminded, that the Price of the Journal was reduced to $3, to all those who paid in advance;—those who are still in arrears for this and former years are respectfully solicited to make their payments.

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The Southern Agriculturist.

(NEW SERIES.)

Vol. VI. FOR JUNE, 1846. No. 6.

For the Southern Agriculturist.

ANALYSIS OF THE ASHES OF THE SUGAR CANE.

New Haven, April 23, 1846.

Mr. Editor,—My dear sir,—Knowing that some of your readers would take an interest in the following results upon the *ashes of the sugar cane*, obtained by Mr. Stenhouse, I have been at the pains to condense them from a very valuable memoir published by this gentlemen in a supplementary number of the London, Edinburg and Dublin Phil. Magazine, and Journal of Science, (No. 183, Dec. 1845, p. 533,) and herewith offer them to you, with a remark or two of my own, provided they meet your views.

	1	2	3	4	5	6	7	8	9	10	11	12
Silica,	45.97	42.90	46.46	41.37	46.48	50.00	45.13	17.61	26.38	52.20	48.73	54.59
Phosphoric acid,	3.76	7.99	8.23	4.59	8.16	6.56	4.88	7.37	6.20	13.04	2.90	8.01
Sulphuric acid,	6.66	10.94	4.65	10.93	7.52	6.40	7.74	7.97	6.08	3.31	5.35	1.93
Lime,	9.16	13.20	8.91	9.11	5.78	5.09	4.49	2.34	5.87	10.64	11.62	14.36
Magnesia,	3.66	9.88	4.50	6.92	15.61	13.01	11.90	3.93	5.48	5.63	5.61	5.30
Potassa,	25.50	12.01	10.63	15.99	11.93	13.09	16.97	32.93	31.21	10.09	7.46	11.14
Soda,	——	1.39	——	——	0.57	1.33	1.64	——	——	0.80	——	——
Chloride potassium,	3.27	——	7.41	8.96	——	——	——	10.70	11.14	——	16.06	0.84
Chloride sodium,	2.02	1.69	9.21	2.13	3.95	3.92	7.25	17.12	7.64	4.29	2.27	3.83

Nos. 1, 2, 3 and 4, were very fine full grown canes from Trinidad, consisting of stalks and leaves, but without the roots: Nos. 5, 6 and 7 were similar canes from Berbice; No. 8 from Demerara; No. 9, of full grown canes, but with few leaves, from the Island of Grenada; No. 10 from Trelawny, Jamaica, consisting of transparent canes in full blossom, grown about six miles from the sea and manured with cattle dung; No. 11, of trasparent canes, from St. James' Jamaica, growing about two hundred yards from the sea, being old rattoons, and also manured with cattle dung; No. 12, young, transparent canes three and a half miles from the sea, and manured with cattle dung, guano and marl.

From these analyses, it appears that the cane for successful cultivation requires a very large quantity of silicate of potassa and also a considerable amount of the phosphates. Few cultivated plants, except the cerealia, require so much. Wheat, or any of the cereals,

necessarily causes the removal of a portion of the valuable inorganic constituents of the soil, such as the alkalies, phosphates, &c., which can only be returned to it indirectly: but with sugar the case is quite otherwise. Sugar is a purely organic substance, consisting of carbon and the elements of water, all of which can be derived from the atmosphere, and contains neither alkalies, nor phosphates; so that if the ashes of the canes were carefully collected and returned to the soil in an available state, there is no reason why cane might not be grown upon the same lands almost indefinitely.

In the West-Indies, where wood is scarce, the crushed canes are employed as fuel, under the coppers of the boiling house to concentrate the sirup, and as the heat required is great, a large amount of the silica and the alkalies present is converted into a hard, insoluble glass, which in this form being useless, is thrown away. We can therefore, readily understand the reason of the rapid exhaustion of their sugar-lands, and the comparatively slow wearing out of those in Louisiana, where from the abundance of wood, the cane-trash is never thus employed, and where in addition to the inorganic ingredients of the cane, the soil receives (at least where the planter-ship is what it ought to be,) the almost equally valuable, mineral constituents of the wood itself. Yours, very obediently,

CHARLES UPHAM SHEPARD.

ON MARL.

A letter addressed to Hamilton Raiford, Esq., Corresponding Secretary of the Agricultural Society of Jefferson County, Georgia, by Ex-Governor J. H. Hammond.

(Continued from page 173.)

In endeavoring to furnish you with something like a theory of the action of lime, I have stated some—perhaps many things—which are questioned by men of great scientific attainment. Agricultural chemistry—indeed the whole science of chemistry—may be said to be yet in infancy. If it is difficult to penetrate the arcana of passive nature, it is far more so to investigate those active operations which are conducted in the air and under the ground, in the formation of plants, complicated as they are in addition by the yet unknown vital agency of the plant itself. Although, on the whole, the art of agriculture has been vastly advanced by the discoveries and experiments of chemists, and he who shuts his eyes to the light they are constantly shedding for the benefit of farmers, is now, and will soon be much farther, behind his age; still it is well known that great absurdities have been put forward, and with the utmost confidence, by the most

eminent characters in modern science. In speaking, then, of the peculiar action of any of the elements out of which plants are formed, and its agency in the mysterious operations consummated in the production of a full grown, matured and fruit bearing plant, it is not only becoming, but necessary that every one, most especially a mere farmer like myself, should express opinions with great diffidence and caution, and hesitate before drawing even from established facts, inferences of important and extensive bearing. In view of this, I ought not to omit to state to you, that within a few years past, a sweeping theory has been suggested by one of the first chemists and most popular writers of the age, that has found some able supporters, and which if true apparently upsets every thing that has been said of the effect of lime in furnishing food to growing plants out of decayed vegetable matter. Dr. Liebig asserts that the decayed vegetable matter of the soil called humus, or mould, affords no direct nourishment whatever to plants. That they derive all their organic constituents from the atmosphere, and only their inorganic from the earth. The organic constituents of plants are those which are dissipated when they are burnt, and in most vegetables amount to from 97 to 99 ports in 100. The inorganic constituents compose the ashes which are left by fire, amounting usually from 1 to 3 parts in 100, in some rare cases to as much as 12 per cent. The only nourishment which, according to this theory, the soil affords to plants, being thus limited to from 1 to 3 parts in 100, the utmost direct influence of good or bad soils, of manure of all kinds—of lime, alumina, silica, and all mineral elements, can reach no further than to the modification of an hundredth or at most a thirty-third part of the crops we cultivate. It follows that the world has all this time labored under a most important error in estimating at such vastly different values, what we call rich and poor lands. That the effects of manure are in a great measure fanciful, or at least that from 1 to 3 lbs. of ashes are equivalent to 100 lbs. of vegetable matter, as an application to the soil, and that it is useless labor to put on manure in any other form. Knowing as we do that a single drop of prussic acid will almost instantly extinguish life, it would not be fair to deny very great influence to even the smallest proportion of inorganic matter in the production of plants. And since Liebig concedes that until the leaves are formed, the plant derives its carbonic acid from an artificial atmosphere generated by the contact of humus in the soil with the air, it would not be safe to denounce this theory in the present state of science, as absurd. It is admitted too on all sides that plants do assimilate carbon from the atmosphere, and it seems established that ammonia descends in rain water. However true this may be, and though Liebig's theory was established as perfectly so in all its parts, I should think it most prudent to hold on still to what experience and rational deduction have taught us of the influence of vegetable mould on crops, in the hope that further discoveries might harmonize old facts and new truths, especially as none of us would set about improving the atmosphere, or desire to

add more carbonic acid or nitrogen to it, since any material increase of these elements would render it fatal to animal life. Indeed, no scientific discoveries or force of logic can ever, I am convinced, for an instant shake your confidence or that of any practical farmer, in vegetable mould and compost manure; or lead you to doubt that the amount of your crop, if properly tilled under fair seasons, depended in all other respects wholly and solely on the quality of your land. Whether the soil furnishes 1 part or 99 parts in a hundred—you have too often seen plants on the same acre subject to the same identical atmospheric influences throughout, varying from good to worthless, according to the soil, to question the important fact that by improving your land you improve your crop in the same ratio precisely, and that by exhausting it you equally deteriorate the crop.

In fact, depth of soil, by which we mean depth of decayed vegetable mould, depth of decayed vegetable mould mixed with sand, clay, &c.,'has been with you, and with all the world, heretofore, a criterion, and a never failing one, of the value of land, and so it will forever continue to be, I venture to assert. If then, as I believe, and you will probably agree, plants derive their most important constituents of all kinds from the soil and from vegetable mould, the value of lime in the soil is by no means limited to its action on the mineral or inorganic constituents of it, but extends to the production also of those organic elements which preponderate so immensely in all vegetation.

But your inquiry of me was in reference to marl. I must therefore remind you again, that all which has been said of lime is true of marl. If it is slower than lime in its early operations, that is more than compensated by many advantages which it possesses. This is becoming so well understood, that wherever the same quantity of lime can be placed on land as cheaply in the form of marl, it is rapidly superseding the use of it in all other forms. Marl contains besides carbonate of lime other valuable constituents. Its silex and alumina though fine in quality are not of much consequence, since they are never thus applied in sufficient quantities to effect the soil materially. But some marls—those in Virginia for instance —contain sometimes sulphate of lime and the valuable green sand of which I have spoken. As the sulphate of lime exists there in eocene marl it may be discovered in our formation. I have seen green sand in specimens from several localities in this State. A deposit of green sand, such as is found and used to an immense extent in New Jersey, would be more valuable in your county than the richest gold mine in the world. There is none of it at Shell Bluff. I have already spoken of phosphate of lime. In marl from Ashley river, in this State, which belongs to the same formation as our marls, 5 per cent. of this phosphate has been discovered. From some crude experiments of my own, I am inclined to believe it exists in some of the marls at Shell Bluff, and probably yours—to what extent I would not undertake to say. But 5 per cent. of it would

give you the equivalent of 9 bushels of ground bones in every hundred bushels of marl, which alone would be worth more than the whole cost of applying that quantity of marl, though the expense of it might be five dollars. We cannot, however, expect to find it in such quantity in all the marls we use. Those will probably be richest in it in which are found remains of bones and teeth. In the shell marls on the Rhine, recent analysis has detected an important proportion of azote, derived it is supposed from animal matter. This is the most powerful, as you know, of all manures. There is every reason to believe that a scrutiny equally rigid would disclose a valuable proportion of it in our shell marls here.

The duration of marl in the soil, is undoubtedly greater than that of lime. The question of the duration of calcareous earth applied to lands, is one of great importance itself, and about which you will no doubt desire to be satisfied before attempting to use it. I have mentioned already, that the ancients regarded marl as producing its effects from 10 to 80 years. Lord Kames states an instance of their being observable for 120 years, and Mr. Ruffin another of 60 years. Few or no records of such experiments have been handed down from generation to generation. In those countries where lime and marl have been used most extensively and for the longest period, it is impossible to say how the land produced before they were applied at all, in comparison with its production now. Of late years, more accurate accounts have been kept. The peculiar effects first observed to follow the application of lime, have been thought to disappear or materially diminish at various periods, reaching from 4 to 40 years, according to the amount applied and other circumstances. It is supposed by writers and farmers abroad, that about 3½ bushels of it are consumed per annum by the crop, and that in general the influence of any quantity will cease in from 12 to 20 years. But these conclusions are not to be relied on. It is certain that no crop will take off so large an amount as 3½ bushels, and the loss from other causes is altogether indefinite. While though at the end of 20 years, the same precise effects as at first may no longer be observable, it by no means follows that this may not be owing to the want of proper applications of other manures that would excite the lime again to its original action. Mr. Ruffin thinks that marl once placed on land, will endure as long as the clay and sand in it. Though we might not indulge fully in this belief, I am of opinion that it will last for a period which may be called indefinite, from its remoteness —particularly when crops are grown such as we cultivate. Irish potatoes consumes more lime than any other crop, perhaps ; nine tons, which are sometimes grown upon an acre, though not with us, abstract about 266 lbs. or say 3½ bushels—but 260 lbs. are contained in the tops, which we never take from the land. A thousand bushels of turnips, tops and all, consume about 2 bushels of lime. Wheat, the cultivation of which is extending among us, requires for a crop of 25 bushels, straw and all, about 9 lbs. or a half peck. Cotton and corn do not require more. Seed cotton sufficient to make a bale of

400 lbs—that 1400 lbs. in the seed will consume about 3 lbs., and most of that in the seed which is invariably restored to the land. If we treble this amount for the stalks and leaves, which however usually rot on the ground, the exhaustion of lime by our heaviest cotton crops will not exceed half a peck when every thing is taken off. Thirty bushels of corn will consume only about $1\frac{3}{4}$ lbs. of lime; if we add five times this amount for the cob, shuck, blades and stalk, it will not require more than cotton or wheat. I am not aware that our cotton stalks, or our corn-cobs, shucks, stalks or blades, have ever been analyzed; but I have, I think, fully allowed for the lime they may contain. And at these rates of exhaustion, 30 bushels of lime, which is about the quantity contained in 100 bushels of marl that has 60 per cent. of the carbonate, will supply the wants of our usual crops, when much larger than we now average, for 240 years, if the land was cultivated so long without rest or restoring any thing to it. The consumption of the crop then is next to nothing. The loss arising from other causes is undoubtedly greater. Quick-lime dissolves in 750 parts of water. A fall of 44 inches of rain, which is less than the annual average quantity that fall here, would afford water sufficient to dissolve 170 bushels per acre. Quick-lime when spread on land, however, becomes a carbonate, and nearly insoluble, too soon to lose to this extent. Still, a considerable amount might be lost in this way, by a heavy rain immediately after liming. Lime after being burnt, falls into a powder. Its minute particles are forced by showers, aided by deep ploughing into the subsoil, and much may be thus carried off. When these things are considered, it is obvious that all the lime in land may in time be exhausted, as it has been from our "drifted" soils. But the chances of its duration are greatly increased by being applied in the form of marl. Being a carbonate, it is soluble by the carbonic acid in rain water only in small quantities, and ages must elapse before it could dissolve and carry of any great amount; and not having been reduced to a fine powder, its particles are too large to be readily driven down into the subsoil, below the reach of the plough. Without, then, assigning any precise limit for the duration of marl, I think it may be safely concluded, that the effects of a sufficient application, under proper culture, will last for a longer period than we can conceive ourselves to have any direct interest in the land to which we may apply it.

With regard to what is a sufficient application, there is a great diversity of opinion, and consequently of practice. Viewing it chiefly as a direct manure, in many parts of Europe, lime is applied at the rate of 8 to 10 bushels per acre annually—in others, at 10 to 12 bushels every third year; and again, in other parts, at 40 to 50 bushels every twelve years. But as its indirect effects are as important, and far more numerous than its direct, and it is therefore an invaluable elementary constituent of soils, the true rule for its application undoubtedly is to furnish the soil at once, if possible, with as much as its constitution will bear, and to repeat the dose as

frequently as the improvement of that constitution will permit, since the more lime, every thing else being in due proportion, the larger the crops. Acting on this principle, many farmers in Europe put on 3 to 400 bushels of lime at once, and sometimes 1000. Such liming is probably excessive there, and in our climate would be utterly destructive. Marl, however, containing from 50 to 70 per cent. of carbonate of lime, may be safely used in four times the quantity we can use quick lime. The usual dose of marl of that quality in Virginia, varies from 2 to 300 bushels. But more can be applied even in Virginia than here. The hotter the climate, the more caution is necessary in the first dose at least. Though this is greatly dependent on the condition of the land to be marled. In the hot and dry climate of Egypt, the fruitful Delta of the Nile contains 25 per cent. of carbonate of lime, which is equivalent in one foot depth of soil, to some 20,000 bushels per acre of marl containing 50 per cent.; but that soil is much deeper, and its vegetable mould inexhaustible. Depth of soil, and the amount of vegetable matter in it, must chiefly regulate the qnantity of marl. M. Puvis has given an interesting table in reference to this. He thinks that we may give to a soil three inches deep, 40 bushels of marl, containing 60 per cent. of carbonate of lime, or 50 bushels containing 50 per cent.; and to a soil six inches deep, 80 bushels at 60 per cent., or 100 at 50 per cent. He does not refer to the vegetable matter, or other circumstances of the soil. I presume that the depths of the soils you cultivate range between the extremes stated, or at least that you seldom plough, and would not, therefore, mix the marl deeper than six inches. I think the amounts he specifies are very safe. As some of my lands are similar to yours, and our climates the same, I will give you my experience on this point. I began to marl by putting 200 bushels per acre, that averaged about 60 per cent. carbonate of lime. On old mulatto land, with a soil about six inches deep, and containing about 4 per cent. of vegetable matter, I have not yet, after four years. perceived any injury from it. On lighter land, containing less vegetable matter, and a soil four to five inches deep, I discovered marl burns the second year. Previously to this discovery, however, I had taken the alarm, and reduced the quantity to 150 bushels, on land similar to the last mentioned. On all the thin spots I perceived the "marl burn" from this amount. I then further reduced the marl to 100 bushels per acre, from which I have as yet perceived no injury. Being now about to finish the marling of all my open land, it is my intention to go over it again, and to add 50 bushels per acre at a time, until I have given to all 200 bushels. I shall by no means, however, venture to do this until, by resting and manuring, I have also furnished to it additional vegetable matter.

I think I may safely recommend you to apply 100 bushels per acre, of the richest marl you have, to any land that now gives you renumerating crops, and 200 bushels, or more, to your best lands. If they are low and sour they will bear still more. I am now putting

250 to 300 bushels on some swamps I have drained, which have several feet of vegetable mould. I should not be afraid to put 1000 bushels per acre on such land—though here I think quick lime would be the best application, as it would hasten decomposition.

It is always most convenient to apply marl to resting lands, and it is also a great advantage to secure, by this means, a new coat of decaying vegetation to start with. So new grounds should be marled the first year: if marled before clearing it would be better still. Very old and exhausted land should be rested two years previously to marling; and in all cases, thin knolls should, if possible, be manured when marled. But a little experience will furnish you the best guides in this regard—you will soon discover all the dangers, and learn to apply all the remedies.

Experience will also teach you in a very short time, the best and most convenient methods of digging, carting, and spreading marl. There are some difficulties connected with digging from marl pits, which, with the means of overcoming them, are stated in Mr. Ruffin's work. They arise chiefly from water, which must be drained off, or pumped out, according to circumstances. I have no experience on this point. My marl is cut from the face of the cliff at Shell Bluff. It is estimated that if a strata of marl is 12 feet thick, 12 feet of covering may be removed to procure it, without hazarding too much. But should you find marl, you need not apprehend much danger of working through it. The great formation of which it is a part, is of unknown depth. Over 100 feet of it is exposed at Shell Bluff; it has been penetrated more than 300 feet in Charleston.

In hauling out marl, the most economical method is to use carts wtih two mules or horses. In a cart properly made, they will haul 18 bushels at a load as easily as one mule will haul 6. The carts should be made with three shafts, so as to divide the weight of the load equally between the mules, and the tread of the wheels should be four inches—axle-trees of iron. In putting on 100 bushels to the acre, the land should be divided by furrows into squares 28 yards each way. This will give 6 to the acre. A load of 18 bushels to each square will rather exceed 100 bushels per acre, but some will always be lost. The full effect of marl cannot be felt until it is thoroughly mixed with the soil. Hence the first year, little is to be expected from it, and it seldom reaches its maximum until the fourth crop—not always then. Its effects may be hastened, and what is also important, rendered equal, by spreading it with regularity over the land. It is best, therefore, to sow it broad-cast with the hand. Each laborer should take his square and spread the pile, using a tray or board to assist him. A hand will spread 9 piles, of 18 bushels each, in a day.

The distance to which marl may be carted depends altogether upon circumstances—one of which is the quality of the marl—another, that of the land—others, the facilities for digging, state of the roads, &c. Along the coast of Scotland, it is transported by sea

from 80 to 100 miles. I have been very recently informed, that at a single marl bank on James river, in Virginia, 10 rigged lighters are now engaged in delivering marl to a distance of from 8 to 20 miles up and down the river, receiving 3 cents per bushel for it, though it is much inferior to ours in quality. The marl I use, averages about 60 per cent. of carbonate of lime. I cut the whole of it down at Shell Bluff, and boat it 12 miles up the Savannah river, re-land and cart it. I have marled about 700 acres within a mile of my landing here—but I have hauled some marl 4 miles, and have spread it on about 500 acres, the nearest part of which is over three miles from the river. This is of course very expensive; but I think it profitable, notwithstanding. If I could lay down any rule to regulate the cost of marling, it would be this: That where land is deficient in lime, it would be a safe operation to expend an amount equal to the present value of it, if so much should be necessary to marl it sufficiently. This rule I suggest upon the principle, that it would be profitable to pay twice for land, if you could thereby double its production without materially increasing the cost of cultivation.

You will naturally inquire, whether any one might reasonably calculate on doubling the production of his land by marling. I believe he may, if the marl is judiciously applied and the proper system of after cultivation adopted. I have seen but few statements of the actual results of marling in Europe. It is said in general terms to produce a great increase, though occasionally it is mentioned that the crops were doubled. So perfectly established is the use of lime and marl there, that every one who can procure them, uses them as a matter of course It is not considered an experiment, and tables of results are not therefore given—at least, I have seen none. A few years ago, Mr. Ruffin addressed interrogatories touching the effect of marl as exhibited in the crops, to a number of the most respectable farmers of Virginia, who had used it, and received answers from twenty-two, many of whom had marled extensively and for a number of years past. These answers were published in the Farmer's Register and in Mr. Ruffin's Report of his Agricultural Survey of South-Carolina. Their marl was of various qualities, applied in various amounts per acre, and on different kinds of land, which had been subjected generally to very severe cropping before. No one of these estimated the increase of his crops from marling at less than double, and some of them rated it as high as 400 per cent. I have no doubt, that under favorable circumstances and good management, the last mentioned increase, enormous as it is, may be often realized. The prospect, however, of doubling the crop with reasonable certainty, is promise enough, one would think, to set every one to marling who can do it within the cost I have mentioned. I have not myself, yet doubled my own crop by the use of marl, nor might the practical results of it, which I ought to state, be so striking to a careless observer as he might expect, after all I have said on

the subject. They satisfy me, however; and I feel perfectly certain that in a short time, the crops on the land I plant, will be at least doubled, from the effects of marl alone, and much more than doubled, in consequence of other additional applications I am making. I commenced marling in November, 1841. I marled only 175 acres for the crop of 1842, the results of which I reported to our State Agricultural Society, as I did those of 1843, on the same land. They were published,* and some of you may have seen them —I will therefore only repeat the tabular statement of those years, and add to it that of the past year. In 1844, these lands rested. The experiment marked No. 1, was made on mulatto land lying on the river bluff, which in appearance, and perhaps in most other respects, is much the same as the best upland cotton soils in your county which have been as long in cultivation. Experiment No. 2, was on light, sandy soil,—the sand is very fine, but altogether, the soil is as inferior as any probably that you plant in cotton. I could scarcely have selected lands less calculated to give the marl a fair chance—both having been cleared more than a century ago—badly scourged, and of course greatly exhausted of vegetable matter.

Experiment No. 1. *Mulatto Land.*

1842.	Seed Cotton.	Less than unmarled acre.	More than unmarled acre.	Pr. ct.
Acre not marled,	1111 lbs.			
Do. marled 100 bush.	846 "	265 lbs.		30.
Do. do. 200 "	1003 "	108 "		10.7
Do. do. 300 "	1318 "		207 lbs.	17.7
1843.				
Acre not marled,	493 lbs.			
Do. marled 100 bush.	654 "		161 lbs.	32.6
Do. do. 200 "	759 "		266 "	53.9
Do. do. 300 "	841 "		348 "	70.
1844 *Rested.*				
1845				
Acre not marled,	324 lbs.			
Do. marled 100 bush.	481 "		157 lbs.	48.4
Do. do. 200 "	584 "		260 "	80.2
Do. do. 300 "	642 "		318 "	98.

Experiment No. 2. *Sandy Land.*

1842.	Corn.	Less than unmarled acre.	More than unmarled acre.	Pr. ct.
Acre not marled,	17 bush.			
Do. marled 100 bush.	21 "		4 bush.	23.5
Do. do. 200 "	21 "		4 "	23.5
Do. do. 300 "	18½ "		1½ "	8.8

* Vide Southern Agriculturist, for February, 1843, p. 74.

1843	Seed Cotton.	Less than unmarled acre.	More than unmarled acre.	Pr. ct.
Acre not marled,	361 lbs.			
Do. marled 100 bush.	451 "		90 lbs.	24.9
Do. do. 200 "	384 "		23 "	6.3
Do. do. 300 "	173 "	188	"	108.6
1844 *Rested.*				
1845				
Acre not marled,	230 lbs.			
Do. marled 100 bush.	317 "		88 lbs.	37.7
Do. do. 200 "	301 "		71 "	30.8
Do. do. 300 "	159 "	71	"	44.6

The first thing that will strike you on looking at this table, will be, that the crops have regularly and excessively diminished, from the time the land was marled. It might be concluded that I had ruined my land by marling. Such I will candidly own would have been my own conclusion, if fortunately I had not kept these unmarled acres to test the success of my operations. Disastrous as have been the three last crop seasons in this section of country, I would not have believed it possible that there could have been such a falling off from seasons alone, and I should have abandoned marl, in spite of the experience of the rest of the world, as injurious, at least to my soil. But great as has been the decrease of production on all the acres, it has been far greatest on the unmarled ones. That of the others, has comparatively steadily increased, except the 200 and 300 bushel acres in No. 2, both too heavily marled, but both recovering again under the rest of 1844. In No. 1, the acre with 100 bushels has increased from 30 per cent. below, to 48.4 per cent. above the unmarled one—making an actual comparative increase of 78.4 per cent. The acre with 200 bushels, has in the same way increased 90.9 per cent. Both these acres are decidedly inferior to the other two in No. 1, and have, I do not doubt, produced this year double what they would have done without marl. The other two acres in No. 1, are a pretty fair test of the influence of marl, being as nearly equal in quality as could have been selected. The sandy land, in time and with proper management, will, I am certain, exhibit results fully as favorable as the mulatto land. It was too far exhausted when marled. I did not reserve test acres on any other fields, but I feel sure that they have derived equal advantage from the marl, in proof of which I could state many facts to one present on the spot, which it would be tedious to mention and explain fully in this letter. I will only state one: The unmarled acre in No. 1, is one of the best acres I plant. In 1842, it yielded 1111 lbs. The average of my whole crop that year, was 666 lbs. per acre. The last year, the same acre, *after a rest*, produced 324 lbs. The average of my crop was 391 lbs. per acre. Thus, the yield of the unmarled acre, was in one instance 66.8 per cent. above, and in the other, 20.6 per cent. below the general average—making a dif-

ference of 87.4 per cent. in favor of the marled lands. Let me add that in 1842 the unmarled acre in No. 2 produced 8.8 per cent. less than the average of the crop. In 1843 it fell to 37.6 per cent., and in 1845 to 70 per cent. below the general average. If these facts may be assumed as data, on which to base a calculation, had the last year been as favorable in all respects as 1842, the average of my cotton crop must have been over 1200 lbs. of seed cotton per acre, and of my corn crop over 28 bushels per acre. This however is only a *paper* calculation, and 1842 was a fine crop year. Time will reveal the truth.

I cannot give you a better evidence of the firmness of my faith in the virtue of marl, than to state, that notwithstanding the discouragements of the last three extraordinary seasons, I have, at great expense, brought up from Shell Bluff, within four years, over 300,000 bushels, carted it out, and spread it over about 2300 acres of land; and am at this moment as actively engaged at it as ever. Nor do I look forward to a period when I expect to cease using it to a considerable extent every year, either on fresh lands, or in increasing the dose on those already marled. It would be leading you into error, however, to leave you to suppose that I rely solely on the marl to improve my lands, Rest, in connexion with it, is indispensable, and manure becomes far more beneficial. I have, accordingly, by opening more land, and reducing my planting, enabled myself to rest, annually, one third of my fields. And I have already hauled out and mixed together, for the coming crop, 96,000 bushels of muck, and 48,000 bushels of manure from stables and stable yards, hog and ox pens, &c., having yet about 20,000 bushels more to carry out before planting. I shall not only endeavor to increase this amount of manure every year hereafter, but also, by clearing and reducing the land in cultivation, to rest, as nearly as may be requisite, each field, every other year. Indeed, the management of land, after it is marled, is of the utmost consequence to the efficiency and profit of marl. Though lime is itself a portion of the food of plants, and therefore a manure, this is perhaps the very least of its virtues. Its indirect operations are far more important. It is the grand agent that prepares for the crop nearly all the food which the earth furnishes. It is the purveyor general—no—the farmer must fill that office: it is the "*chef de cuisine*" that selects the ingredients, mixes, and seasons almost every dish to suit the delicate appetite of the growing plant. It is from the materials placed in the soil by nature, or the industrious husbandman, that this skillful artist draws the rich repasts it furnishes; and it could no more furnish them without these materials, than your cook could make your soup without joints and spices. The larder of the marl must then be amply supplied. The means of doing it are rest and manure. The great gain to the farmer is, that having once engaged in his service this powerful, untiring, and almost universal agent, he may safely exert himself to the utmost of his ability to supply it with every thing necessary to carry on its important operations. Seizing on whatever is valuable,

it preserves it from waste—combining with the utmost generosity the wisest economy, it not only yields to the plant all it requires, but stimulates it to ask more, while it is inaccessible to demands from all other quarters.

There is no fancy in this—theory and experiments unite to prove it true. And I trust that no great length of time will elapse before marl shall have written its own eulogy in indelible characters over all the broad fields of your county.

Permit me to conclude this letter, for the great length of which I owe you an apology, by returning my acknowledgments for the honor you have done me in electing me an honorary member of your Society, and by wishing each member of it the utmost success in his agricultural pursuits. I am, very respectfully,

Your ob't. serv't.

J. H. HAMMOND.

From American Quar. Journal of Agriculture and Science.

GUANO.

It may be, and undoubtedly is, all very well and necessary for England to import manures, and depend very much upon portable manures to fertilize her soil. But it is not so in the United States. We have large resources within our own borders, amply sufficient to furnish all the manures our farmers want for years to come.

I was sorry when guano was first imported into this country, because I believe that I could see its tendency, to make our farmers neglect their own resources, and because unless all things are favorable throughout the season, it is positively useless. And such I know has been the experience of very many in the past season. Every thing was unfavorable. In many fields, which were planted, the seed never came up, and the season was so dry that what came up received no more benefit from the guano than they would from the same quantity of pulverized stone or brick. As far as its use in this country can be estimated, it has been a very profitable speculation to the importers, and a losing game to the farmer. The following facts are deserving of consideration, and I have therefore noted them down.

1. Guano is very uncertain in its action when pure. It is a highly concentrated manure, and its beneficial use will depend on various circumstances, such as the dryness or wetness of the season, &c. In Peru the ground where it is applied is thoroughly irrigated immediately after each application of the guano, and this application is made two or three times in the season. And the free application of water is essential to the procuring of the effects of the manure. But in this country we can irrigate our corn-fields only when Providence sends us rain; and this supply is often very precarious, as during the past summer.

2. Guano is not permanent in the soil. If all circumstances are favorable to develop its best effects for one season, the soil has derived no permanent improvement from it, or at any rate but little. I have never seen any evidence of its remaining in the soil more than the year following its application.

3. It is liable to great adulteration. In England, vast quantities of *stuff* called guano are sold, which do not contain a particle of it, but are a vile imposition, and are said to be absolutely useless. It is a remarkable fact, that the analysis of no two samples of guano, from the same locality, agree. This would not be so strange, if the variations were immaterial, but they are really important. I do not pretend to say that these differences result in all cases from adulteration, but it is at least a good cause of suspicion, and if in England it is carried on so extensively, there is no reason why we should not fear that the same thing is done here.

4. The supply cannot be depended on. It took but a few months to sweep the island of Ichaboe as clean as a floor. The immense cliffs of guano off the coast of Peru are fast dwindling away, and the original manufacture of it by the countless flocks of birds in tropical regions, has ceased. A few years at most and all will have disappeared, and the farmer will be obliged again to resort to his own supplies at home.

For the Southern Agriculturist.

NEW METHOD OF OBTAINING PEACH TREES.

Sumterville, April 27, 1846.

Last fall, my wife as usual, stowed away her flower boxes in a pit dug about three feet in depth, and covered partly with boards and partly with an old sash. In one of the boxes the branches from the geraneum covering too great a space—for the purpose of contracting them, a sion some four feet in length was cut from a peach tree standing near, divided into four equal lengths, pointed and stuck upright in the several corners of said box. On Saturday last the boxes were all taken out, and to my surprise discovered that the cuttings were living and with the exception of a single one, green to the extreme outer end. All had shot forth branches some two or three inches in length, and apparently as green and thirfty as any to be seen on older trees. I pulled up one of them and discovered that the roots had protruded no where save from under the bark encircling the point. I mention the circumstance as I am not conscious of ever having heard or seen the plan recommended for propagating the peach. I think it equally as efficient as grafting, and certainly much more simple. Very respectfully,

HENRY HAYNESWORTH.

DRIED CAROLINA FIGS.

A correspondent of the Savannah Republican, over the signature of Carolinian, says:—"For some time I have been of the impression that as good figs could be prepared in Georgia and Carolina as the imported. Accordingly, last season I prepared a quantity, not for market, but for family use. As fig season is approaching, and as the crop has the appearance of being an abundant one, I give you, for the benefit of fig-growers, my plan of preparing them:—Gather the figs with the stems to them, before they are fully ripe; have a sirup prepared, either of brown or white sugar; and while boiling, put in your figs and let them remain till they become flat, which will be in a few minutes, take them out, put them on a dish or tray, and place them in the sun; after they have drained, place them in another tray, taking care to turn them; let them be turned and gently pressed down twice a day. Two or three days sunning is sufficient to cure them. Before boxing them, have some well dried loaf sugar sifted upon them—box them, and they are ready for use. It is important that they are not allowed to stay too long in the boiling sirup—if they do, they can never be properly dried.

"I contemplate sending you a box this season for exhibition in the Savannah market."

From the American Agriculturist.

CULTURE OF SUMACH,

In September, 1843, I sent you an article on the cultivation of sumach, which appeared in your number for October. I am pleased to inform you, and the friends of American industry generally, that the quantity sent from the South for the past year, 1845, mostly from Virginia, has been equal to about ten thousand bags, equivalent to seven hundred tons, being nearly one-twentieth of the consumption of the country.

I mentioned in my former essay, that the most astringent vegetables, or those containing the largest portion of gallic acid, are raised in warm climates. Now, although the sumach sent from Virginia has been used in place of Sicilian, yet that which can be raised in South-Carolina, Georgia, Alabama, and more particularly Florida, would be of decidedly better quality. I would, therefore, call the attention of enterprising citizens of those States to the article, and can promise them that they can cultivate no product that will pay them better.

I stated in my article of 1843, "that I had been informed sumach would not reproduce from the seed, it being a hybridous plant; but on consulting a Mr. Woodward, who sent the seed of our sumach to England, he says it will reproduce, as much of the seed sent there produces bountifully." He states that it should be gathered as

soon as ripe, and planted soon after; so as not to become too old. This I consider an important fact, and one which our southern planters should embrace; for by planting the seed, and mowing down the shoots three times annually, they might obtain from three to five tons per acre, with much less expense and trouble than by gathering and bringing home the natural growth scattered extensively over the country. The sumach is perennial and when once planted would last for ages, the crop when sown annually increasing until the ground became full of roots. WM. PATRIDGE.

From Paxton's Magazine of Botany.

HOARE'S MODE OF PLANTING THE VINE.

A few months ago, Mr. Hoare, the well known writer on the vine, published a new system of managing the roots of that plant, which if not applicable in its widest sense to many climbing plants, may be applied in a modified degree with a reasonable assurance of success; and the consideration of this, we would now direct attention.

Mr. Hoare's method for the vine is to construct compartments for each plant of bricks cemented together, and with a flooring of the same material, so as to prevent the roots from penetrating beyond them. These are filled entirely with equal proportions, well mingled together, of broken bricks, charcoal, lumps of mortar and bones, the three former generally in fragments about the size of a hen's egg, and well soaked in liquid manure for some time previous to use. Smaller or larger pieces may also be added; this should be in some measure regulated by the size of the compartment; and it is necessary that the whole be very compactly placed together. When this work is accomplished, they are covered up with bricks as before set in cement, with the exception of a space where they are left loose for the insertion of the plant, and the administration of fluid.

The advantages claimed for this method, are, that it presents a continual source of food which is never in excess, or, at least, is so conditioned that the plants can rarely obtain an overabundant supply. The substances which afford it are always moist, but never wet, a state which necessarily renders them a much *warmer medium* than ordinary earths; and whilst the roots of a plant are thus placed in a warmer temperature, they are also less liable to be affected by any occasional depression of the atmospheric temperature.

The extensive absorbent powers, and the capability of retaining moisture possessed by brick and charcoal, must be well known to every scientific cultivator. The same powers are also in a large degree common to old decayed mortar; hence when those materials have laid in urine, and are mixed together with a proportion of bones—which are in themselves a manure of the most lasting character,—a fund of nourishment is stored up which is almost exhaust-

less, and is represented to furnish means of nourishment and facilities for growth, beyond that which can be obtained from a much larger bulk of mere soil.

Although this method is expressly intended by Mr. Hoare for the management of the vine, we entertain little fear of the success of its application to many climbing plants with strong roots, which have hitherto been found very difficult to flower, or to restrain within moderate limits; but we apprehend it will be necessary to employ a larger number of smaller fragments than is recommended for the vine.

Perhaps, however, the utility of these substances may be greater and more general when used in conjunction with a small proportion of loose earth, wood-ashes, rotten wood, and leaves in a partial state of decomposition. And in this respect we can speak more advisedly, as our remarks are not merely speculative, but founded on past experience. In adopting it, the earth need not be mingled with the entire mass, but merely incorporated with the upper portion of it, to assist the plant in its earliest efforts to establish itself; for it is then that a portion of earth seems most essential, and it will through time by the continual ramification of roots, and occasional waterings, be carried in small quantities amongst the lower part of the mass, It is better, too, that it should be primarily employed only in the upper stratum, in order that a larger amount of the finer fibres may be encouraged in the vicinity of the surface.

From the London Horticultural Magazine.

NOTES ON THE VINE.

BY J. M'DOANLD.

Dr. Lindley, a received authority at the present time, says, "the system of English grape-growing requires to be changed." As I have for some years thought so too, and acted conformably to the idea, I may, perhaps, be allowed to say a few words on what I have in practice found to be a simple and sure method of growing the vine well and profitably. If we may judge from the commotion making by the Polmaise system, and Hoare's new work, the vine culture, like the pine culture, is destined to be revolutionized, and made in the first place, a nine days' wonder to the mere looker-on, and perhaps many years' annoyance to the practical man.

The vine is undoubtedly accommodating and ductile in its nature, beyond, perhaps, any fruit-bearing plant we possess, otherwise it would never do so well under such and so many various treatments. Still there is undoubtedly a right way. My own experience, combined with fourteen years' observation, puts it in my power to say that *deep* borders of *retentive* or *highly manured* soils are *not*, as is often maintained, the most suitable medium, nor the most profitable,

in which to grow the vine. It must be obvious to all who may give themselves the trouble to think or observe, that grapes growing on vines in such borders, are in general, and in cold, wet seasons, particularly, apt to be ill-coloured, of indifferent flavor, and with a strong tendency to shrivel prematurely, while the young wood, in all but the earliest forced house—which under such circumstances, will be small and long-jointed—will require much firing to ripen it; which artificial heating, if accomplished by the medium of smoke-flues, will be sure to encourage the generating and ravages of red spiders and such pests.

Therefore, seeing such to be the produce and consequences of *deep rich borders*, and a *high dry atmosphere*, theory would lead us to conclude that *shallow* borders of *light porous* soil would be the most fit and proper medium into which to plant, and that a *high* day temperature, with *abundance of air*, and a *low* night temperature, with *abundance of moisture*, and a close, calm atmosphere, would be the most proper climate in which to grow the vine; theory, I say, would lead, and did lead me to conclude thus years ago; and in practice I have had ample proof of the correctness of such surmises.

When I entered into the charge of the gardens at Riccarton, in May, 1842, I found the vines growing in wide and very deep borders of rich, heavy, and retentive soil; where, notwithstanding the drought and warmth of that summer, they made wood, the best cane of which was scarcely the thickness of an ordinary goose quill; and leaves, the largest of which would scarcely cover the palm of the open hand; and fruit small, with a great tendency to shrivel, the very best of which was but ill-colored and of indifferent flavor. I certainly felt vexed and annoyed at the circumstance, but had the consolation—if so it may be called—of being informed by my employers, that such, *and no better*, had been the crops and appearances of the vineries for many previous and successive years. Next autumn I pruned the vines severely, and early in spring, 1843, I lifted their roots, excavated out the soil in which they were planted, to the depth of thirty inches, then trod and beat into a pretty firm floor, with a good slope outwards, the surface at which I had then arrived, and upon which I laid a stratum, one foot in depth, of old peas sticks; above which I placed a stratum of decaying tree leaves, and some partly decomposed herbaceous refuse, mixed with light, rich, but very sandy soil. On this stratum I laid the roots, and over these I put about a foot of the original soil, made lighter by the addition of a considerable quantity of lime, rubbish, sand, and thoroughly decayed leaves—indeed, upwards of one-third part of the one-foot thick stratum over the roots was composed of these light, poor materials. The consequence has been that now, in autumn, 1844,—eighteen months after the operation—the canes all over the houses are round, firm, short-jointed, plump-eyed, having leaves from eighteen to upwards of twenty inches direct across, and fruit of first rate quality. My employers, and many others who have tasted of it, say so. Some canes of the last year's growth, have this

season borne twelve pound's weight of fruit; and some canes for this year's growth will, next year, easily, and well, bear and mature twenty pounds of fruit.

Making this assertion of the capabilities of an annual cane, leads me, in conclusion, to attempt to give you a sketch of my mode of training and pruning the vine, as it is different from the modes practised in this locality.

During the first year—it matters not whether the plant be a young one, or a cut-over old plant—one shoot, and only one, is trained up direct under the rafter; one, of course, from a *different* root being trained up under the centre of the sash; and so on, one under each rafter, and one under each sash, all over the house, and all trained and treated alike; which shoot is allowed to grow unchecked until it has attained a length of six to eight feet, when, having it well grown, from fifteen to twenty eyes or buds formed, it is stopped then, and repeatedly afterwards, during the season. When the pruning arrives—which, with me, is the end of autumn,—all the indifferent eyes or buds are scooped out from the shoot, until ten or twelve only are left. These will next season produce strong shoots, having, some three bunches of fruit, some two, and all at least one bunch; which bunches must be cut away, or thinned, until only what will mature to ten or twelve pounds of fruit are left. All the shoots, of course excepting the mother, or leader shoot, *and one from the base* of the plant, are stopped one eye beyond the fruit, while the leader and base shoots are each allowed and encouraged to perfect their ten or twelve good eyes, for next or third year; on which year the original cane, same as second year, bears fruit only on the shoots proceeding from the twelve eyes on previous year's growth, the twelve shoots on the under part of it being cut close away after bearing first and *only* crop, and no others allowed to eminate from *their* parent stem in their place, which place will be occupied on this, the third year, by the shoots proceeding from the young or base shoot of previous year's growth. On fourth year a third young or base shoot is allowed to perfect its twelve or fifteen eyes, and the original cane, after bearing a crop on its twelve upper eyes, is cut clear away as near the ground as possible; and so on, year by year, a young cane is started, and an old one cut away. Thus, bunches of fruit, numerous as by the open system, and much heavier, may be had regularly all over the house, without old or weak wood, or confusion of training.

Here I have said nothing of planting, as I take for granted that gardeners in general, would have grown the roots of their vines outside the house, and the stem introduced *under the surface* of the soil into the house.

Draining low lands will contribute to promote health and profit. Generally speaking, our wet and marshy lands are the richest in organic matters, and become the most profitable to the owner, when thoroughly drained. [*Buel's Farmer's Companion.*

From the Proceedings of the Agriculturists' and Mechanic's Association of Louisiana.

CULTIVATION OF MASTODON COTTON.

BOSTON PLANTATION, NEAR YAZOO CITY,
Mississippi, Dec. 20th, 1845.

To the President of the Agricultural and Mechanic's Association, of the State of Louisiana:

Sir:—Appreciating in a high degree the objects and operations of your Association, and feeling in common with the citizens of your State, a deep interest in the great subject of Southern agriculture, I beg leave most respectfully to ask your attention to the subject of "*mastodan cotton*," an entire new variety of our great staple, which has recently made its appearance among us.

The high character which this cotton has obtained in the short time it has been in the country, will perhaps be regarded as a sufficient apology for me, as its original propietor, by inviting the attention of your Association, to introduce to the public a very few brief facts in relation to it. The name Mastodan, was given to it myself —its nativity I have never learned. All I know in relation to its origin is, that a traveller in the interior of Mexico, about five years since, purchased four seed at a high price and brought them to this country. It has been grown now four years by myself. Last year, about twenty or thirty other persons cultivated small quantities in Mississippi and Louisiana.

I have endeavored, as far as practicable, to obtain the views and opinions of others, who have cultivated the Mastodan, to compare with my own experience, and I have the satisfaction to state, as the best information I am able to concentrate, that the *product* of the Mastodan, on either the river bottoms or uplands, is greater than that of the common Mexican cotton of the country, and that in many respects it is a much more certain crop.

The picking of the Mastodan, is somewhat better than our common cotton, the bolls being about double the size. It hangs in the boll slightly tighter than our other cotton, which prevents it from falling out in the field, but still only so tight as to make but perhaps a barely perceptible difference in the picking. It gins a little harder than the common cotton. Upon the whole, the Mastodan is the easiest to raise and prepare for market, pound for pound.

In regard to the mode of cultivating the Mastodan, I will observe, that I make no difference between it and the common cotton. I give it the same distance and the same cultivation. The gin for the Mastodan should have wider grates than common, in consequence of its great length and staple. Or if the common gin be used, it should be run slow, or it will cut the fibres. The Mastodan cannot, I think, be ginned on the roller gin, as some purchasers and cotton brokers have suggested, in consequence of its strong adherance to the seed.

Upon the subject of the value and quality of the Mastodan cotton in market, it would not become me to offer any views of my own,

for the opinion of others, much better qualified to judge, are within your reach; I will barely observe, that the general length of the staple is about two inches, and it is regarded in New Orleans as being of a remarkable strength and firmness. My own present crop is the first and only crop of Mastodon ever raised in the United States; a part of this was sold a few weeks since in New Orleans by Messrs. Buckner & Stanton, at 16 cents round. Other little parcels have been sold at various prices ranging as low as 12½ cents. These cottons, as far as I know or am able to learn, were all handled in the common rough manner, without any special pains taken. My own, I can aver, was both picked and ginned very roughly. It is believed moreover, that in consequence of the sudden and unexpected introduction of small lots of long staple, into the New Orleans market, where short staple alone have been hitherto looked for and purchased, the Mastodon has not, as yet, been able to assume a fair position in the market, and command the price it was really entitled to. Next year, it is presumed, it will establish for itself a market in New Orleans.

Assuming then, the premises above suggested, *is not the introduction of Mastodan cotton into the country, a matter of great moment to the whole South, if not to the commerce of the nation?* Should your Association deem it expedient, then, to make any inquiry into the properties or usefulness of this staple, I will most cheerfully at all times confer with any member thereof, with a view to the acquisition of the most authentic information. I would not, Sir, by any means assume to myself the privilege of making such a suggestion as this, but for the well known fact, that we have all so frequently had our attention called to some new "*superior cotton*," most of which had had an annual or biennial period of prosperity, superinduced generally by *careful handling*, and has thus found a resting place in the common neglect of all.

Allow me in conclusion to state, Sir, that, should you deem the subject matter of this communication worthy of sufficient notice, you will allow me to propose, that my friends in New Orleans, Messrs. Buckner & Stanton, Hoopes & Marye, or V. & L. G. Galloway, will either of them place at your disposal a sack of the seed of the Mastodan cotton, to be used in any way that may probably advance the agricultural interests of Louisiana.

Hoping, Sir, that this obtrusion upon your notice may not, under the circumstances, be deemed improper, I am, fellow-citizens of the cotton-planting South, an ardent admirer of its rising prosperity, and your most obedient servant, R. Abbey.

In addition to the above, Mr. Miller on the same subject, says, that this is the second year that he has planted the Mastodan cotton seed, but that until the present season, owing to the scarcity of seed, on a very limited scale. He had, he says, this season, about fifty acres, which produced about fifty bales, although the "stand" was poor, there being in many places not over half a stand, which

was caused by thin seeding. The plant, he says, comes up better and grows more vigorously, when up, than any species of cotton with which he is, or has been, familiar. The stalk grows considerably larger than that which bears the common Mexican cotton, and bears as many, if not more bolls, and they are twice as large. His opinion is that it should be planted in land that has been somewhat worn, say such as has been in cultivation eight or ten years. On the river bottoms he is certain it will produce as much, or more, than any other kind. He coincides with Mr. Abbey, in stating that the expense of gathering and preparing for market, is not greater than that attending the common Mexican cotton, and he says his merchants in this city, Messrs. Burke, Watt & Co., assure him, that it must, from its superiority, command double the price of that description.

NOTE.

We have heard planters say, who were singularly intelligent men in all business matters, save raising cotton, that just in proportion as the price of cotton fell they were obliged to raise more, to make up the deffciency in their incomes. A principal of economy they would treat with ridicule, if applied to any other business transaction of life.

By inference to the culture of Mastodan cotton, it will be perceived that by cultivating a better article than the usual cultivated cotton, that *three times* the value was produced by *one-third less number of bales.* By cultivating fine cotton, instead of an indifferent article, the saving is almost four fold. The bagging and rope, the carting, the freight, the insurance, the pressing of a bale of cotton, worth 7 cents per pound is the same as on one 16 cents per pound. The profits therefore are increased beyond the mere superiority of the value of one article over another, nearly one-fourth.

GREAT PRODUCE OF THE RUTA BAGA TURNIP.

Tuscaloosa county, Alabama, April 1, 1846.

Maj. Stephen F. Miller, Editor of the Monitor:

Dear Sir:—I have just finished an experiment with the Ruta Baga Turnip, and will give you and your readers the result, as I think it will be serving the cause of agricultural improvement. In July last, I prepared upwards of three quarters of an acre, though not a full acre of land, which I had been using as a salting yard for my sheep, and any thing else that chose to come and lick salt out of my boxes, as it was unenclosed. It was a hill side and a small level at the base—common pine sandy land, and *new ground.* I ploughed it deep twice with a scooter plough, and saved about twenty steps square of it about the 15th July, in order to have some early turnips, which was just in time to get the rain that was the breaking up of our great drought, and got a good stand of turnips on this small

space. In about two weeks I sowed the balance of my ground and brushed it in—it was very dry again, and but few comparatively of my turnips sprang up. On the 15th August, I discovered a cloud rising, and thinking it would be my last chance for a turnip crop, I hurried to my house for my turnip seed, for the purpose of sowing a second time, at the same time sending my little sons to the pasture for a parcel of my sheep. While the cloud was rising I sowed my seed, and by the time I was done, there were some 50 or 75 head of sheep at the gate ready to be let in. The rain began to fall, and as it fell I walked my sheep gently over the ground, to and fro, till I thought my seeds were sufficiently covered. This course was pursued in order to save what few turnips sprang up of my first sowing, which succeeded admirably, at the same time covering my last sowing very well. The rain was a light one, though it gave me a good stand of turnips. They grew off wonderfully, and by the coming of frost, the tops in places were nearly as high as my waist. In spots where the former rains had floated the sheep manure in beds, the turnips exceeded any thing I ever saw, and were talked about for miles around. With the Ruta Baga I mixed the common turnip, and they did well together. We had turnips for the table very early in the fall, and I had about a dozen pigs and shoats that took a run upon them in October and November and grew very fat on the tops of the Ruta Baga, though not touching the tops or any part of the common turnips. They got so fat and large at last, that they could not get through the fence at their usual holes, and we commenced feeding all our hogs on the turnips, by boiling roots and tops all together in a large pot, till our hogs were nearly fat enough for pork, and I believe there were about twenty-five head of them.

Winter set in and we commenced feeding them to our milk cows, four in number, with young calves, by cutting up roots and tops in troughs. I think the four cows consumed about a gallon a piece at a feeding, making a bushel per day, besides the tops. Towards the middle of winter we sold one cow, and in March we sold another, though we continued to feed away the same quantity of turnips per day. I thought we never would get rid of them, and began to turn my ewes and lambs on them—the hogs took to them again—we used them every day in our family, and gave a great many to our neighbors. In short, we looked like we had waged a war of extermination upon them, but they have beaten us, for the stock of every kind has gone to the hills for grass, and there is at least a score of bushels of turnips in the ground, besides a small square I reserved unhurt for seed. On less than an acre of ground I am satisfied I raised 1500 bushels of turnips, with only a few hours labor, and they were worth four or five acres of corn, fed in the best possible way. The Ruta Baga is yellow, and much sweeter than the common turnip, the larger part of the root growing above the surface of the ground, which makes it necessary to take them up and house them before the succession of hard frosts that we usually experience here in November, as they are soon injured by frost. Your friend,

DAVID CLAYTON.

PLANTATION ECONOMY.—TREATMENT OF SLAVES.

New Orleans, April 24, 1846.

To the Editor of the Bulletin:

Enclosed you will find a communication addressed to me, from that practical agriculturist and philanthopist, Dr. Phillips, on the subject of his *treatment of Negroes* and field work in general; showing the beneficial effects of his treatment by the general good health of his people.

As the health of the slave is directly connected with the interest of the planter, I have no doubt you will promote the pecuniary welfare of some of your country subscribers, by inserting the Doctor's letter in your valuable and widely circulated journal.

Respectfully, J. A. RUFF.

LOG HALL, EDWARD'S DEPOT, MISS.,
April 13th, 1846.

Mr. John A. Ruff:—Were you to give me the selection of any one subject, which I should devote more than even direct attention to, for the express design of benefiting my family, and my country, I know not but what I should name—the treatment of our slaves. I mean not only as regards their labor, but entire treatment, whether in health or sickness, at work or when at rest, in their houses or out of doors.

You know well my situation in the swamp of Big Black, with this river running as near me as a mile, and not over some two to three miles from direct north to west by south; then fourteen-mile creek about one mile off south of me, not one half mile from south fence until it debouches into the river; with overflowed land from the river and creek both, more than half round my premises.

You have not only much personal knowledge of the health of my family, but also from report. You also know well what my yearly crops of cotton have been for the past five or six years, and have seen your self whether we work by night and Sundays as well as by day. Futhermore, you have been with us often enough, and long enough at a time, to know somewhat of our rest from labor, "when the sun is at its meridian height."

I can assure you that, taking my family of blacks, old and young, I have not had an average of a sick day for several years; I have not given ten doses of medicine excepting Jerusalem oak, leaves and seed, to children, for many months, I almost think for thirty months; one of my negroes has not taken a dose since my return here in October, 1839; some five have not lost a day each for over three years.

I know not whether my management is the cause, whether my location is favorable to negroes, or whether "I am in luck." I am thankful such are the facts, and leave others to judge.

I have had sickness, and for several seasons; but generally I could trace the effect to a cause. Sometimes I have had nearly

one halt complaing—immediately I inquire about their food, and seldom am I mistaken. You will, therefore, suppose that I regard food as quite material. I do, but not regardless of other things. As to food: for many years, my negroes ate out of the same pot, as it were—that is, our food was exactly alike for dinner, and *their* breakfast and supper was like their dinner. Except for a very short period, occasionally, we have cooked for them for the last sixteen years, and we endeavor to give them vegetables the year round. Except at this season, they have invariably cabbage, or turnip tops, all the year; sweet potatoes, Irish potatoes, and garden vegetables generally, in season. I have not been out of sweet potatoes until within three days past for several years. I have now about four thousand cabbage plants out, with other vegetables in proportion. My garden contains about an acre, and my white family numbers bare two.

I do not think I feed as much meat as many do, but my negroes very seldom complain. I give some half a pound each, or a little over, it being weighed out daily. I cannot say exactly, as the number of children are about equal to my grown ones.

The great object is, give them enough: have it well cooked, and *give them time to eat.* Negroes cannot, or will not—they do not—eat in as short time as whites; I can, and do eat my meals in from ten to fifteen minutes; they will eat thirty by the watch, and oft times forty-five; I have timed them, and know it to be a fact.

When the cholera raged through our land, many persons forbid the use of vegetables; a neighbor of mine, a very intelligent brother Doctor, too, cut up his cabbages, etc., and his fruit trees, I was told, to prevent his family using them. I did not change my plan. I had a few cases, but by attention and care, they all recovered, and are now on the farm. As I name fruit, let me speak of it here. I have more fruit to the number of persons, than any man in Mississippi. I am very particular to prevent the plucking of unripe fruit, and catch my youngsters sometimes; but I gather enough every day at 12 o'clock to give every one as much as can be eaten. This is done daily when our peaches, melons, and figs are ripe.

I direct my hands never to rise before day; they do it in the winter, and I frequently give a scolding for it. They have over and oft been caught asleep not long before sunrise. I never work after night, unless in putting away cotton, and sometimes when taking up fodder. The hands are all required to keep out of the rain. My women never allowed to carry cotton. My rule for working is, work briskly, and when tired to rest; keep mules in a good lively gait, about one and three fourth miles per hour. My entire gang, rest, from about 1st of April, during the ploughing season for three hours, as I think hands can do a full day's work in eleven to twelve hours. The English and German term of labor is some eight to ten hours; not the latter I think.

At this time my hands go out at 5 o'clock, the call is at 11, and they return to the field at 2, they knock off at say quarter past 7, working eleven and a quarter hours. I *do* plant ten acres of cotton to the set of hands where the rows are four feet distant, or over twelve when five feet, that is, my hands travel twenty miles; and I judge there are few who are pushing for thirteen to fourteen hours who do as much. And by the by, this is work without using a lash, for I am not with them a great deal, having other matters on hand.

There are very many, and old planters too, who doubt the practicability of this, but I can prove it any day. And it is reasonable, an animal—man is no more—will get tired of going for fourteen to sixteen hours, whether at work or not, but rest him three or four hours, and he will be comparatively fresh. I have ridden thousands of miles, and have jogged off as much as seventy-five miles, resting myself and horse for a few hours, and can travel any distance with more ease to my horse at five miles per hour with rest, than if going only three all the day. I have worked horses and mules here for over six years, and they are apparently as able now as ever. I dwell on this matter, for I think it a material consideration. I beg to refer to a friend of yours; he became so thoroughly convinced that this is the true course, he was resolved to try it with some sixty to eighty hands. He found at first that the time of rest was a clear loss, hands and team were so very slow; he said "they were so broke down," that they could not make a day's work; but before long, he got them up to it, and the consequence was, the Doctor's bill was trifling, several women that had not had children for years, and others that had lost, brought forth fine children. The same plan was introduced on a neighboring large plantation, with equally good results.

I do not find the same need for correction as formerly, and seldom complain of my day's work. I have no doubt, I am easier satisfied, but I make decidedly better crops and with more ease.

I have for several years kept a horse for every hand, as I work everything in the breaking up season. I use the best ploughs I can procure, and besides, I use a variety. I presume the quality of ploughs will be thought as having no bearing upon the management of negroes. But I ask, if a negro has to push his plough in, hold it steady, guide it and the horse, if he is not a used up negro to all intents and purposes? For this reason, with others, I use good ploughs, and to lighten the labor, and to make it more expeditious I use cultivators, sweeps, shovels, bull-tongues, etc. etc.

I have known a planter, who used only the old Carey plough; never took his horses from the plough from daylight until dark; his negroes cooked for themselves while he was asleep—and he made fair crops, was "*a good planter*"—but if he had conscience or humanity, where was it?

Another matter—I have said in a former portion of this, that I have not had on an average a sick day for several years, and that I had not given ten doses of medicine, saving for worms, for some

little to my former good health. I have heard others attribute the change of health to this cause, and have trird to get some accurate data; but my planting friends are careless about giving their experience, that others may profit thereby.

Ere I close, allow me to say, my experience with fresh meat is unfavorable to its use, so much so, that if I could keep my negroes as straight by night as by day, I never would fear disease. I use mutton freely in fall (late) and winter, I use beef moderately in the fall and first of winter, very seldom pork in any shape. The worst years for sickness here, have been when I used barrel pork. If I use fresh meat when the weather is warm, I have Cayenne pepper to season with. My doctoring is rather on the quack order, but as some of my brother M. D's. are vending nostrums to make money by, I hope I will be excused, as I am a distanced doctor, and do not offer my prescriptions for pay. If there is nothing indicative of inflammation about the stomach or bowels and no need for the lancet, I give when first complaining, an emetic of ipecacuanha and tartar emetic, and often give a second one the next day. I bleed when necessary—sometimes I give a good dose of rest, and have given a good dose of leather. I use quinine freely, never less than three or four grains at a dose. Seldom give calomel. As I am always "at home," I see my negro when first attacked, and nine times out of ten an emetic with quinine to follow, cures the patient. When one that has not taken medicine for a long time gets sick, I advise the bed, hot foot bath and starvation—one here has not taken a dose, except "bacon and greens" for ten years; he was "berry bad off," "feels berry sick indeed," I bled him, sent him to bed, he grunted two days and came out as lively as an old fellow ought to.

With children, I use a weed known as Jerusalem oak, every spring and fall; I don't wait for them to get sick; there is a woman that cooks and takes care of them; when sick, warm water in cold weather, and cold water in warm weather is used freely; they take no medicine; I have not given a dose per year scarcely.

One thing I have noted as to children:—When one woman cooks, the children look badly and are complaining; put them in charge of another, and they will fatten equal to Berkshires. I mean by this, as differing from others, that they fatten remarkably well. In reading over I find one thing overlooked: when my negroes are resting from eleven to two, they are debarred washing their own clothes even; permitted to do no labor except currying, rubbing down and feeding their mules.

You requested me to write an article or so. I have done so. You are at liberty to use in any way that you think will be most serviceable to our fellows. Allow me to say, not that I have any pride as to being a writer, but proud that I was raised to work. I have been with my hands a good portion of the day, and write this after my supper. I have not the time to copy or to correct; if it is worth publishing it is worth correcting.

Believe me to be sincerely, your friend

M. W. Philips.

From the New-York Farmer and Mechanic.

INDIAN CORN.

DISCUSSION BY THE FARMER'S CLUB—NEW-YORK.

May 5th, 1846.

Col. J. S. Skinner, in the Chair.

W. Meigs read the following translations by from the *Revue Horticole de Paris*, 1846.

At a late sitttng of the Academy of Sciences, Boussingault communicated the following observations upon the Arracacha:

The plant belongs to the Umbelliferous family, and from its partial resemblance to celery, the Spaniards of South America have called it *Apio*. It is probably originally from the Andes of New Grenada, where it is much cultivated. From the tempeiate levels of Cundinamarca, its culture has been extended beyond the Equator, being now established in the Andes of Popayan and Los Pastos, for at about the same period, the potato left the cool regions of Chili—and being propagated from South to North, following the Incas in their conquests, fixed at Quito in Peru—before it penetrated New Grenada.

And it is a curious fact in the history of the food of man, to see in South America, maize (Indian corn) cultivated by small numbers of people at first, and also other important articles of human food—afterwards attain so advanced a civilization. Thus the Arracacha cultivated by the Muyscas—the Potato propagated by the Incas—Cocoa by the Mexicans.

Behold now the maize (Indian corn,) the potato and the cocoa forming the basis of the nourishment of America and Europe. (Cocoa is almost indispensable in Spain.) The Arracacha has not yet entered into our culture.

Monsieur Goudot had observed its cultivation during twenty years he resided in New Grenada. The Arracacha is planted by cuttings of the root, each having a part of the sprouts. The roots must be dug up just before the flowering season, and they are of an irregular figure, weighing from 5 to 7½ pounds each. The weight of a good crop at Ibague, was about twenty tons per acre. It is not quite so nutritious as the potato, for although in equal weight, it contains the same proportions of starch and albumen as the potato, yet it has more humidity.

Efforts are made by the French government to introduce it into France.

Mr. Meigs—remarked that the term *maize* was, when spelt *mayse*, used by some of the northern people of Europe to denominate bread. Maize was of the genus of plants called Zea by the botanists.

That the term *samp* was Indian, and meant corn coarsely broken boiled *in milk*. The term *hommony* was Indian, and meant corn coarsely broken, boiled *in water*. And that it was conceded that

Indian corn was a native of America, unknown to Europe or Asia before the discovery of this continent.

Chairman—I published, some years ago, in my Farmer's Magazine, some account of the Arracacha. Some friends of mine imported it into Baltimore; planted it; but I do not recollect what was the result of that experiment. I will look it up.

As to Indian corn, the qualities of it vary much in the different sections of the United States. The bread made from Southern corn is dry and very palatable; that from Northern corn is more moist and heavy. The quality of bread made of any corn depends as much on the modes of cooking it as upon the kind of corn used. I think that the success of the experiment of introducing the use of Indian corn into England, will depend upon these circumstances of quality and cooking.

Col. Edward Clark—Our Northern corn seems to contain more silicious matter in its composition, than the Southern corn. It requires much longer immersion in water before it is sufficiently softened. Our flint corn has its name from its hardness. Our Southern corn is easily pounded or ground, and is much more easily cooked. When cooked with milk, or with a portion of lard in it, it is excellent food.

Judge Van Wyck—Indian corn helps the soil on which it grows for succeeding crops of grain. It is an excellent crop to precede one of wheat. The soil for corn must be rich—for it is a common saying—*corn is a grass feeder!* and the cultivation necessary in a crop of it has the effect of leaving the soil in fine condition for wheat or any other grain. Corn is one of the strongest and best foods for man, and still more so for many animals. It has more of the *flesh-making properties* in it than any kind of wheat. *Oats and corn ground together* form a feed which fattens animals more rapidly than any feed given to them. I believe that the Southern corn for some purposes is preferable to the Northern. It makes a lighter bread and is more easy to cook. But the Northern is a stronger food than the Southern. The stalks of corn fed to cows give the best milk and more of it than any hay. This effect is probably due to the large amount of saccharine contained in the stalks—sugar is made from their juices. The roots of corn extend far, and great care ought to be taken not to injure them in ploughing or other cultivation.

Mr. Houghton, of Rahway, New Jersey—Our Northern corn, if judged by its price in market, is to be preferred to any other, for it brings always *two cents per bushel more than any other corn!*

Col. Clark—Our Northern corn weighs six pounds per bushel more than the Southern corn.

Mr. Wakeman—Our Northern hard corn is oily, and what is termed *pop corn*, owes its peculiar property to its oily nature. I read the following remarks from an intelligent writer, "Of the grain stuffs, rice and corn differ in this, that the former contains the least fatty matter, and corn the most, and ranging between these extremes we have wheat, oats, rye, barley, &c., all different, and yet are capable

of being applied to the conditions best suited to them. It is on account of the fatty nature of Indian corn, that it is such a strong kind of food, and that persons unaccustomed to it cannot at first endure it. The nations which feed chiefly on rice, are not near so robust as those which use Indian corn, as the blacks at the South mostly do. Persons unaccustomed to this kind of food, therefore, will do best to commence with the white Indian meal, in preference to the yellow, as it is not so rich. This preference has already occurred in England, where the article is new. There is only one more observation which I wish to make. As Indian corn-meal contains so much fat in it, if kept too long it is liable to become rancid, and it is then more or less unfit for use. In the shipments made to the West Indies, the meal is commonly kiln-dried, to obviate as much as possible, this tendency to rancidity. For reasons just detailed, the white corn-meal will keep rather better—and from its being lighter and milder, it is as much preferred for use in warm climates, as the yellow for similar inducements, is in cold.

Mr. Hyde.—The discussion of this question here, ought to be carefully conducted—for it may have some influence on public opinion abroad. There are two kinds of Southern gourd seed corn—one white and the other yellow. Our Western corn is a flat grain, and is both white and yellow. Our Northern white and yellow corn have more gluten and less starch than the Southern corn—so has the corn of our Western country. The differences of quality are almost as distinguished as the latitudes in which they are produced. I have raised the Canada corn in Missouri, and its growth was there so rapid that it was fit for eating by the first day of July. The white corn of Rhode Island, has more starch than most Northern corn; Jersey corn has more yet, and makes better bread. Our Western corn has yet more starch. Our Tuscarora corn has most starch of any corn. And I have known persons find it quite difficult on examining fine bolted meal from the Tuscarora corn, to distinguish it from wheat flour! Our sweet corn has little, if any starch—it is only good to eat when green, it is then very sweet and delicious. The Canada corn is insipid—Rhode Island corn is somewhat so. The sweet corn grows all over our country without alteration in its peculiar properties.

Mr. Meigs.—I have planted almost all the varieties of Indian corn. When Lewis and Clark returned from their visit to Oregon, they brought with them a small corn, which had been from time immemorial, cultivated by the Mandan nation of Indians, and have for years cultivated that corn in my garden, and have distributed its seed for years. The plant attained about three feet of height and the ears of green corn were usually fit to eat on the fourth of July.

Mr. Hyde.—We can raise Indian corn in our county *for twenty cents a bushel!* we can have from thirty to fifty bushels per acre with a very moderate amount of labor when compared with other grain. Our wheat may average some twenty or twenty-two bushels

per acre—so that we can easily have twice as much corn as of wheat on an acre. In our Western world corn is raised by the plough alone—*the hoe is almost* entirely unused by our people, and it is not necessary to use it. Corn pounded in a mortar coarsely, or ground coarsely in an iron mill, and judiciously cooked, is universally esteemed. I should like to hear something from my learned friend, Mr. D. J. Browne on the subject of corn.

Mr. Browne.—My friends calls me up, and I will here exhibit a diagram, original experiments made by Dr. Jackson, of Boston, shewing cut sections of corn and other grains, on which in order to shew the starch and phosphates contained in them, in their respective proportions, Dr. Jackson had poured a solution of phosphate of copper, and on others a tincture of Iodine. The first shews by its green tint the presence and quantity of the phosphates, by the latter the blue tint denotes the presence and proportions of, and by the dark red tint the portions of dextrine starch contained in the grains. Mr. Browne here performed the experiments in presence of the club.

I exhibit here the pop corn and the rice corn; the grains of the latter of the size, and nearly the figure, of grains of rice. This rice corn has of all, the least portion of starch. In these grains the oil is the cause of the peculiar effect of heat in turning the grain inside out, called *popping* it, from the slight explosion which results from the decomposition of the oil of the grain. In order to produce this result in the best manner, have a box of wire gauze of small meshes, holding about two quarts; put in the pop corn and expose it to heat, often turning it about, and very soon every grain will explode and be turned inside out. The gases cannot burn, nor can the corn be hurt by the fire, for it acts on the same principle with Sir Humphrey Davy's Safety Lamp! A light house on Lake Erie has used oil made from corn for burning. Some sixteen gallons of the oil have been obtained from one hundred bushels of corn, and it is believed that the oil is of a superior quality.

Prof. Mapes.—Mr. Ellsworth, late of the patent office, exhibited this corn oil; it appeared to be very good.

Mr. Browne.—The various applications of Indian corn are very valuable in rural economy. Those kinds which yield the most starch are best for bread. Those which contain the largest portion of oil are best calculated for feeding poultry.

I here present Indian corn from Peru, to this Club. (It was distributed among the members.)

Prof. Mapes—Corn is supposed sometimes not to flourish for want of the the presence of phosphates in the soil. How to supply such deficiency—bone dust is well adapted, for bone dust contains eighty-five per cent. of phosphate of lime, and fifteen per cent. of galatine. The fish called *moss bunker*, used for manure, is valuable principally on account of the super-phosphate of lime in its bones. It is this chemical element to which its fertilizing power is due.

Mr. Wakeman.—In order to bring our great favorite, American Indian corn, into proper notice and just appreciation—I move that the members of the club, do bring to the next meeting all the best receipts for cooking corn—and when a selection has been made by a competent committee, we will send them to our patriotic and intelligent consul, Mr. Cowdin, at Glasgow, for the benefit of our worthy ancestors the Anglo-Saxons of England.

From Chamber's Journal.

GURNEYISM.

This term, of whose meaning perhaps nineteen twentieths of our readers are utterly ignorant—is applied to a new and particular kind of manuring, which has been employed with signal success by Mr. Gurney, a farmer in East Cornwall. The operation consits in covering grass land with long straw, coarse hay, or other fibrous matter, about twenty pounds to the fall; allowing this covering to lie till the grass spring through it, which it does with astonishing rapidity, to the desired length, and then rake it off to allow the bestial to reach the pasture. The covering is then applied to another portion of the field; the operation of removal and covering being repeated so long as the straw or hay remains sufficiently entire to admit of convenient application. The merits of the system which is yet in its infancy, were thus stated by Mr. Gurney at a late meeting of the East Cornwall Experimental Club. About seven weeks since, he had covered half a field of grass, of three acres in this manner, and about a fortnight ago, when examined, the increase had been found to be at the rate of upwards of five thousand pounds per acre, over the covered portion of the field. At the time the straw was raked off and laid in rows twelve feet apart in the field, and 115 sheep were put on the grass with a view to eat it down as quickly as possible. After they had been there about a week, they were succeeded by 26 bullocks, to eat off the long grass remaining, and which the sheep had left. The field was thus grazed as bare as possible. The same straw was now again thrown over the same portion of the field from which it had been raked; and on inspection that morning, he had found the action going on as powerfully as on the former occasion. He thought the sheep, on first raking off the straw, were not so fond of the grass as they were of that uncovered; bnt after twenty-four hours exposure to the sun and air, he thought they rather preferred it. He had forty acres now under the operation, and in consequence of it, he had pasture when his neighbors had none. Fibrous covering, or Gurneyism, as thus described, is certainly a cheap and convenient mode of manuring; all that is wanted is only further experiment to test its general applicability.

PROCEEDINGS OF THE BLACK OAK AGRICULTURAL SOCIETY.

At a regular meeting of the Society, held on the 20th of November last, a statement of several experiments with marl, were presented by T. W. Porcher, Esq., and read for information; and he was requested to continue the same and report the results:

Statement of an experiment with marl by T. W. Porcher, the last season, on 3½ acres with marl, alongside of the same quantity of land unmarled; both pieces well manured and treated in every manner as much alike as possible. Experiment No. 2 submitted last year, was made on the same ground. (See Southern Agriculturist, vol. V. page 206.) Result:

Seed Cotton from 3½ acres marled with 100 bush. per acre.		Uumarled.
August, -	200	145
September,	480	470
October,	335	275
14th November,	370	350
	1385	1240

A difference of 145 lbs. seed cotton in favor of the 3½ acres marled, or of 41 lbs. per acre, which is nearly 12 per cent.

F. A. Porcher, from the Committee on Analyzing, made a verbal report, that the Committee had employed Dr. J. Lawrence Smith to perform the work, and that it was in progress and would be reported to the Society as soon as it was completed.

The same gentleman introduced the following resolutions which were adopted.

Resolved, That a sum not exceeding $30 be appropriated to purchase a rain guage and self-registering Thermometer for the use of the Society.

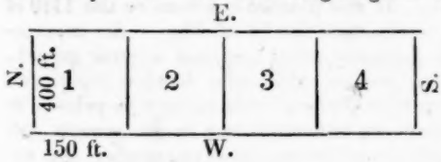
Resolved, That these instruments when purchased, shall be placed in the hands of the Secretary of this Society, whose duty it shall be to keep a record of the average monthly and annual fall of water, as indicated by the rain guage, and to record daily the temperature of each day, as indicated by the Thermometer.

Mr. F. A. Porcher also presented a thermometrical register, which was accepted and ordered to be printed.

The following Statements of Experiments, were furnished for record:

1*st. Statement by Dr. Waring, on Plaster of Paris,* 1845. A field of cotton 400 feet in width was selected for the following experiment with Plaster of Paris:

Two alternate lines, ½ acre or 150 feet wide, were treated with the plaster at the rate of a bushel to the acre, by having it sprinkled about the plant soon after the first thinning, the intermediate adjoining lines receiving in all respects a similar treatment, save the plaster. The following diagram will facilitate the illustration.



Nos. 2 and 4 were plastered—Nos. 1 and 3, not. So that 2¾ acres was the amount of land plastered, and the same not. Throughout the season, from a very short time subsequently to the application of the plaster, this portion of cotton was to be distinguished from the rest of the field by the deep green and flourishing appearance of the plant and its better growth. The unplastered portion of cotton, all save in a few spots of rather low

land, assumed a yellow cast, arising it was presumed, from the thinness of the land and drought combined.

It may be well to observe, that this land though originally good, had been severely scourged by cultivation and almost worn-out. It had rested the year 1844, and in February 1845, the eastern half of the field had leaves and surface soil carted upon it from the adjoining swamp, at the rate of a cart-load to every two rows, and this was put under the list. The western half of the field was marled at the rate of 70 or 75 bushels to the acre, applied broad cast over the land after listing. The land was ridged 4½ feet from centre to centre. The plastered cotton as before stated, was of a taller growth, having attained at the close of the season a height at least one-third greater on an average than the other. What was very remarkable, the field almost entirely, as soon as the cool weather commenced, presented a bare appearance, the cotton-plant having shed nearly all it leaves, and the naked stems, branches and pods, exposed to the sun's influence; save on the plastered portion, where the plant retained its foliage of a healthful green color, and blossoming until frost.

The consequence of this was seen in the earlier maturity of the unplastered cotton, the cause not so obvious. The result in production was as follows:

		Plastered.	Unplastered.
September	15,	171 lbs.	197 lbs.
"	27,	176	200
October	15,	223	261
November	1,	188	112
"	4,	123	16
"	15,	85	00
	Total,	966	786

Thus it will be seen, the plastered yielded 966 lbs. seed cotton, the unplastered 786 pounds—difference of 180 lbs. seed cotton in favor of the plaster on 2⅔ acres of land—equal to 67½ lbs. seed cotton per acre, or about 20 lbs. clean cotton.

Some yellow cotton, but very little, was to have been obtained from the plastered land, but an irruption of cattle caused its disappearance. None from the unplastered.

Other experiments were made with plaster, by applying it in similar quantity to the above, upon corn alone, and upon corn and peas, but strange to say no effect whatever was to be observed. It was expected that the most obvious beneficial influence would have been seen on the pea crop, as in a former experiment this was a fact; but whether in consequence of drought, or what other cause, no effect of any kind was to be noticed either on the peas or corn. A marked benefit was thought to have been obtained by sprinkling over the straw of the stable with plaster from time to time, but no experiment was instituted to determine the comparative benefit. The result was, that with the same amount of manure made in the stable, the land produced in an unfavorable year within a fraction of as much grain, as it had ever done under my management in the most favorable, and considerably above the average of the last 6 years, and no other cause could be assigned for this comparative exemption from the disastrous influence of the last season, save the incorporation of the plaster with the stable manure.

2d Statement of an experiment with Plaster of Paris, by H. W. Ravenel, in the summer of 1845.

Forty rows planted in cotton 150 feet in length, and 4 feet apart, were selected on land as uniform as it was possible to obtain it. On 20 of these rows the plaster was applied on the list, at a pint to the row, being at the rate of one bushel and 5½ quarts per acre. The land had been planted every alternate year in cotton for 12 or 14 years previously, and rested the intermediate years. It was planted in cotton on the 11th of April, and there was no rain to sprout the seeds, until the 3d of May. An unprecedented dry season followed, and the cotton generally never acquired a great growth. Shortly after the plant came up, the plastered portion exhibited a decided superiority over the other in color and size; I could see no difference with respect to priority in blooming: The plastered cotton had evidently the advantage in a larger growth, and consequently more branches and buds. Up to about the month of September, the superiority of the plastered cotton with respect to color and size, was apparent to any one riding by; it was less obvious afterwards. The cotton was picked carefully, and

weighed by myself, but I regret to state that during one of the pickings, the cotton was caught in a shower of rain and spread out to dry, and through the inadvertency of the driver was thrown upon the heap before it was weighed.

The account however, gives all the pickings with that exception, which it is presumed would not have varied the comparative result.

	20 rows plastered.	Not plastered.
September, -	12 lbs.	12 lbs.
October and November,	78	63
	90	75

A difference of 15 lbs., or at the rate of 56¼ lbs. of seed cotton per acre.

3*d. Experiment with stable manure, Plaster of Paris, and marl, at Hanover plantation (estate of D. J. Ravenel) in* 1845.

A portion of the cotton crop was treated with the above named manures. A half acre of each was selected for testing the result, on land nearly contiguous and as uniform in fertility as it was possible to obtain it. The cotton was picked in carefully and weighed by Mr. Harvey, the overseer. Result:

	Half acre with Stable Manure.	Plaster.	Marl.
In seed cotton,	276 lbs.	265 lbs.	252 lbs.

4*th. Experiment with Plaster of Paris, by W. Mazyck Porcher* 1845.

On 2½ acres of cotton, plaster was applied about the middle of June, at the rate of one bushel per acre; 2½ acres of cotton adjoining, on land of the same quality, were selected for comparison; both were carefully gathered and weighed, and gave the following result:

2½ acres plastered, yielded	93 lbs.	clean cotton per acre.
" " unplastered, "	83	" "
A difference of	10 lbs.	per acre in favor of the plastered.

5*th. Experiment in burning off new ground in clearing, by Dr. H. Ravenel.*

In the summer and fall of 1843, commenced clearing a piece of new ground at Hard-put plantation. In the following winter, whilst getting it ready for listing by burning off the brush heaps, the fire burnt over three different spots in the field, before it could be subdued. These burnt spots were in different parts of the field, and amounted altogether to about 5 acres: The land was all listed, bedded and planted, and the cotton upon each burnt spot came up well and gave a regular stand, whilst the rest of the field was very missing and had to be replanted. The cotton in the burnt portions grew off finely and maintained a decided superiority throughout the season, so much so, that the outlines could be traced distinctly by the appearance of the cotton. No account was kept of the result, but by comparison with the adjoining parts, it was supposed to have made at least 20 or 30 pouuds more of clean cotton per acre, than the average of the rest of the field. The improvement from burning was so apparent, that in all the clearings since, fire has been passed over the land preparatory to planting. Last year 1845, the land was planted again in cotton, but no difference was perceptible between the burnt and unburnt portions.

—

At the Anniversary meeting held 28th April last, after reading of the Journal, H. W. Ravenel, who had been previously elected, delivered the Anniversary Address:

On motion of Dr. Waring, *Resolved*, That a copy of the Address be requested for publication.

In consequence of the inclemency of the weather, the quorum necessary by the Constitution to award premiums, was not present, and there was no report made by the Committee on Premiums.

There were several excellent specimens of domestic cloth and cotton blankets exhibited; also several skeins of sewing silk, made in the neighborhood and dyed of various colors; and a model Brogan, the manufacturer of which had received the premium at the Manufacturers' Fair in Boston, was sent by Robert A. Pringle, Esq. of Charleston, for exhibition.

By request, Mr. Seabrook addressed the Society. He urged the encouragement and extension of Agricultural Societies, as a means to elevate the moral as well as pecuniary condition of the planting interest, and the necessity of concert of action among our selves, in order more effectually to frustrate the efforts of those who are endeavouring to subvert our institutions.

He also requested of the Society, that it would furnish to the State Agricultural Society at its November meeting, essays on the sweet potato, its history and mode of cultivation; the cow-pea, its uses, &c., and an account of our marling operations, with the results.

On motion, it was *Resolved*, That the following plan of an experiment, for testing the utility of topping cotton, be adopted, in which all the members who feel an interest are invited to join.—

One and a half acres to be selected in the cotton field, uniform in situation and fertility, and all in one body. On the 1st of July, one quarter of an acre to be topped; on the 15th of July another quarter; on the 1st of August another quarter; on the 15th of August another quarter; on the 1st September another quarter; the remaining quarter to be left untopped. The cotton from these six different portions to be picked and weighed separately, and the weights noted.

Resolved, That a Committee be appointed, to which those who undertake the experiment, are requested to hand in their statements. That this Committee make to the fall meeting, if practicable, a report in full of the experiments, and also whatever deductions may be drawn from a comparison of the different results.

Resolved, That those who undertake this experiment are requested to adhere strictly to the above plan.

The Committee appointed under the above resolutions are H. W. Ravenel and T. W. Peyre.

The following Standing Committees have been appointed for the ensuing year:—

On Cotton.—William Cain, Dr. Peter Palmer, A. J. Harvey, Dr. H. Ravenel.

On Corn and the Provision Crops.—Dr. M. Waring, S. G. Deveaux, Solomon Clark, John Harleston.

On Manures.—T. W. Porcher, Wm. Dubose, P. M. Porcher, Dr. Joseph Palmer, H. F. Porcher.

Committee to award Premiums.—W. Mazyck Porcher, William Dubose, Isaac Porcher, jr., Robert McKelvey, James Gaillard, William Sinkler.

COMMITTEES OF INSPECTION OF PLANTATIONS.

For Cooper River.—Keating Simons, W. D. Gaillard, John S. White, James Poyas, Keating S. Ball.

Black Oak.—Isaac Porcher, jr., F. A. Porcher, T. W. Peyre, H. F. Porcher, P. M. Porcher.

St. Stephen's.—Charles B. Snowden, W. M. Porcher, D. Bonneau, S. W. Palmer, William Dubose.

Upper St. John's.—Dr. Peter P. Palmer, T. W. Porcher, Dr. Joseph Palmer, P. C. Kirk, William H. Sinkler.

THE COTTON CULTURE.

The cotton culture is of itself, the great modern agricultural wonder. The first cotton exported from America, was in 1785, one bag, per Diana, from Charleston S. C., to John and Isaac Teasdale, & Co., 2,100 lbs. In 1792, the quantity was 138,328 lbs.; in 1794, 1,601,760 lbs.; in 1795, 6,276,300 lbs.; in 1837, 594,494,010 lbs. In 1831, there were in twelve of the United States, one hundred and ninety-five mills, in which were 1,246,593 spindles, and 33,506 looms; 77,517,316 lbs. of cotton were consumed, and 66, 362,652 lbs. of yarn produced. In these factories were employed 18,539 males, and 38,927 females, or together 57,466. Their wages amounted to $10,294,444. In 1844, the amount of cotton produced in the world in round numbers, was 900,000,000 lbs., of which quantity, 466,000,000 lbs., or more than one-half, were produced in the United States. In the same year, the capital employed in connexion with growing cotton in the United States amounted to $800,000,000. The number of persons employed was 1,000,000.

COTTON MANUFACTURED IN THE UNITED STATES.

The increase of the consumption of raw cotton in this country is truly astonishing, and presents interesting and highly important facts to the mind of every friend of his country.

The Hon. Abbott Lawrence, in his third letter on the subject of the Tariff, states some interesting facts in relation to the consumption of cotton in the United States. Since 1816, a period of twenty-nine years, the amount consumed has increased from 11,000,000 to 176,300,000 lbs.—more than *sixteen fold.* During the same period the increase of consumption in Great Britain has been from 88, 000,000 to 560,000,000 lbs.—less than *seven-fold.* We manufacture more cotton than France, and quite as much as 60,000,000 Germans.

"Oak leaves," says Thaer, "are not easily decomposed, and contain an astringent matter which is highly injurious to vegetation as long as the leaf remains undecomposed."

A cotton factory, says the Traveller, is about to be established at the Falls, above Tuscaloosa, on the Black Warrior river, Alabama. A capital of $60,000 has already been secured, and measures taken to procure machinery from the North.

Virginia has already nearly twenty woolen manufactories, and the products of her cotton manufactures amount to more than $500,000 per annum.

The cotton factory of Samuel Jamieson, Esq., at Norristown, Pa., is said to be one of the largest and most thoroughly finished in the United States. It is built in the form of an L, its entire length is nearly 300 feet, five stories high, and with machinery as complete, as any in the world. It is propelled by steam, the engine being a hundred horse power; contains a number of self-acting mules, and drives 17,000 spindles. The proprietor is a most excellent and useful citizen, and is called, among his neighborss the Napoleon of Manufactures. [*N. Y. Far and Mech.*

IMPROVED PLAN OF GROWING MELONS.

We noticed, last summer, in the garden of W. Neff, Esq., at Yellow Springs, a mode of growing melons, &c., that was entirely new to us; and, as we thought, decidedly superior to any plan we had before seen. The following letter, recently received from Mr. Neff, though written in haste, is sufficiently explicit to enable our readers to understand and adopt the plan:

Cincinnati, March, 20, 1846.

M. B. Batcham, Esq.—My plan for growing melons and similar vines, (which you saw in practice at my garden, last summer,) is as follows: In the centre of a bed about twenty feet square, form a mound of mellow earth about two feet high and seven feet in diameter at the base; on the top of this mound, place a barrel with both heads out, the lower rim to be forced an inch or two into the surface of the mound; then fill the barrel with rich manure, almost to the top. On the slope of the mound, from the barrel to the base, plant the seeds; and as the plants begin to run, direct the vines from the mound over the bed. I only spade the ground as the vines approach, so that they have the newly turned soil to run upon.

When the rains are not sufficient, pour a couple of buckets of water into the barrel, in the evening; which, passing through the warm manure, (heated by the sun during the day,) becomes a most excellent fertilizer as it oozes among the roots, down the sides of the mound. The trouble of adopting this method, is but little—the expense nothing; and the vines can be nourished as much as is desired. The product is vastly increase thereby, and, in a dry season, the benefit is incalculable. WILLIAM NEFF.

[*Ohio Cultivator.*

PEAR TREES.

Mr. Samuel Ford, at a meeting of the Philadelphia Society for promoting Agriculture, held last January, made the following statement as to his method of improving the fruit of the pear-tree. He said, "from experience, I can state the advantage to be derived from the application of iron to the roots of the pear trees. It is known to all naturalists that iron enters largely as a component part into the fruits of the pear tree; and as many of our choicest varieties have very much deteriorated, I feel it a duty to state that my fruit has been much improved, and some that were almost worthless restored by the following applications:—During the winter, when the frost will admit, I have my trees dug round to the distance of three feet, baring up the upper roots, and then have applied a bushel or more of cinders from blacksmith's shop—old iron would be better. This oxydises by the rains of the season, and is taken up in the sap as it ascends in the spring. This is a simple experiment, and one that will be highly prized by all the lovers of fine fruits. Extract from the minutes. AARON CLEMENT.

Philadelphia, 1846. *Rec. Sec.*

NEW PROCESS OF TANNING.

A French paper states that a Dr. Turnbull of London, has made a discovery in the art of tanning, which as that paper asserts, is destined to eclipse every thing of the kind heretofore known.

Although this principle on a large scale has been applied in England, it has just been introduced in Paris, and a communication on the subject has been presented to the French Academy of Arts and Sciences, which relates to what is styled "Dr. Turnbull's practical application of the theory of endosmosis and extosmosis, to the process of tanning, and also the application of the soluble principle of sugar to the same purpose."

This theory of endosmosis and extosmosis, is this: When a membrane intervenes between two liquids of different densities, they produce two currents, the one outwards called extosmosis, and the other inwards endosmosis. By this new physical law the currents interchange until they become of the same specific gravity; thus Dr. Turnbull, by sewing up a hide filled with one liquid of a certain specific gravity, and then immersing the hide in another liquid of greater or less density, keeps up his reciprocal action until such times as the hide is thoroughly tanned. By the ordinary process of tanning, it requires eighteen months to tan an ox hide, and 400 lbs. of bark. Dr. Turnbull tans the hide in fourteen days, and with only one hundred pounds of bark. Here, then, is a saving of outlay for the process, and the tanner, with the same amount of capital, can do thirty-six times as much as under the old system. And this

is not all. Dr. Turnbull's process gives an extra weight of leather, varying from 15 to 25 pound per cent. Calf-skins which under the old process require an immersion in the vat of five, six, and seven months, are by Dr. Turnbull's process tanned in two days. This rapidity of execution is by no means attended with inferiority to the leather produced. On the contrary, it is said to become much better, all the saturation required for the production of good leather, being as fully effected by the new as the old process. The best tanners of Paris have certified to the reality and great benefit of this discovery after seeing the operation performed under their own eyes, and a commission from the Academy has been chosen to report on these remarkably useful experiments. [*N. Y. Far. and Mech.*

CHEAP PAINT.

The Ontario Farmer gives the following recipe for a cheap paint. He says he has tried it on brick and finds it well calculated to preserve them, and prefers it to oil paint. He says, also, that it will last longer on rough siding of wood than oil paint will on planed siding on boards.

Take one bushel of unslaked lime and slack it with cold water; when slacked, add 50 lbs. of Spanish whiting, 17 lbs. of salt and 13 lbs. of sugar. Strain the mixture through a wire sieve and it will be fit for use, after reducing with cold water. In order to give it a good color, three coats are necessary on brick, and two on wood. It may be laid on with a brush similar to whitewash. Each coat must have sufficient time to dry before the next is applied.

For painting inside walls, take as before, one bushel of unslacked lime, 3 lbs. of sugar, 5 lbs. of salt, and prepare as above, and apply with a brush.

You can make any color; for yellow, use ochre instead of whiting; for lemon color, ochre and chrome yellow; for lead and slate color, lampblack; for blue, indigo; for green, chrome green.—The different kinds of paint will not cost more than one-fourth as much as oil paints, including labor of putting on.

GREASE OF WOOL.

Vanquelin made experiments on the nature of this grease, from which it appears to be formed, 1. of a soap, with basis of potash, which form its chief part; 2. of a small quanity of carbonate of potash; 3. of a notable quantity of acetate of potash; 4. of lime, whose state of combination he could not determine; 5. of a small quantity of muriate of potash; lastly, of an animal matter, to which he ascribed the peculiar odor of the grease.

CHEAP BOOKS!

With much pleasure we announce to our numerous readers and patrons, that we have just completed arrangements, by which we have on hand, and are constantly receiving from the principal publishers in this city and elsewhere, all *the most valuable and useful works* that have been or are about being published To our numerous mechanical friends, we can always supply any work, whether rare or common, on MECHANICAL or SCIENTIFIC subjects, also the best and most desirable works on ARCHITECTURE, either published in this city or abroad, at the publisher's lowest cash prices.

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We have been informed, by a Planter, who resides near the city, that he can supply persons wishing to *purchase* from his Stock of CATTLE, SHEEP and HOGS, with those of the best breed. Having imported a very extensive Stock of the newest varieties. His terms are moderate. Apply at the office of the Southern Agriculturist, No. 4, Broad street.

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LIST OF PAYMENTS.

Dr S A Elliott, Orangeburg,	1844, '45, '46	J J Mikell,	1846
Mr J T H White,	1846	St Helena Agricultural Society,	1845, '46
Mr D F Jenkins,	1846	Mr J F Chaplain, Beaufort,	1845, '46
Mr J W Keels, Pineville,	1846	Dr R L North, Walterboro,	'44, '45, 46
Mr John W Mallett, Alabama,	1846	Col B Campbell, Baldwin co. Ala,	1846

TO OUR READERS.

We have concluded in this Number, the excellent article "*on marl*," by Ex-Govenor Hammond, and have the satisfaction to know that it has reached individuals through our Journal, that would otherwise never have seen it; and that it is spoken of in highest terms.

The "*analysis of the ashes of sugar cane*," by Prof. Shepard, we have commenced our Number with, and call the attention of our scientific readers to it.

We have inserted the Proceedings of the Black Oak Agricultural Society, from a pamphlet lately printed. The experiments it details will be found interesting and useful. We refer our readers to our table of contents for the other articles—some of which they will see contain highly valuable information to our planters and farmers.

TO OUR SUBSCRIBERS.

We shall continue to publish the names of those generous patrons, who pay us for the *Southern Agriculturist*, because we think they are supporting a work of public utility, and performing the part of patriots. In order to assist those at a distance who have not complied with our frequent calls, we insert a method by which we may get our dues through the Post-office. An order on the Postmaster in Charleston, will be thankfully received; the following is the form:

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To the Postmaster at Charleston.

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